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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/519,727	03/03/2000	Kok-Wui Cheong	STFUP014	6703

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EXAMINER

WILLIAMS, DEMETRIA A

ART UNIT	PAPER NUMBER
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2631

DATE MAILED: 05/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/519,727

Applicant(s)

CHEONG ET AL.

Examiner

Demetria A. Williams

Art Unit

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 March 2000 and 10 July 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-9, 11-16, 18 and 20-24 is/are rejected.
- 7) ☒ Claim(s) 5, 10, 17 and 19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4, 7, 8. 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 22-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Claims 22-24 depend from claim 20, but make reference to limitations that are not present in claim 20, nor in claim 8 from which claim 20 depends. Applicant may have intended to refer back to claim 21 as opposed to claim 20. Appropriate correction is requested.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 3, 4, and 6 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent 5,887,032 to Cioffi ("Cioffi_032").

Art Unit: 2631

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

6. Regarding claim 1, Cioffi_032 discloses a method for crosstalk cancellation comprising receiving a signal having data and superimposed interference, estimating the crosstalk, and calculating the data based on the estimated crosstalk (see generally abstract; column 3, line 44 – column 4, line 11; column 11, lines 20-61).

7. Regarding claims 3 and 4, Cioffi_032 further discloses that the data signal is a multi-carrier discrete multi-tone signal (see generally column 3, lines 44-46).

8. Regarding claim 6, Cioffi_032 further discloses that the method is useful for VDSL data transmissions (see generally abstract).

9. Claims 1, 2, 7-9, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Gitlin.

10. Regarding claim 1, Gitlin discloses a crosstalk cancellation method comprising receiving an input signal having a data signal with superimposed crosstalk, computing the estimated crosstalk signal, and calculating the desired signal based on the estimated crosstalk (see generally column 3, lines 41-52).

11. Regarding claim 2, Gitlin also discloses estimating the desired signal and using both estimations to calculate the appropriate received signal (see generally column 3, lines 41-52).

Art Unit: 2631

12. Regarding claim 7, Gitlin discloses a crosstalk cancellation method comprising receiving symbols and calculating estimates of these signals, iteratively calculating an expected value for the symbols based on an estimate of the interference present, and obtaining a final value (see generally column 3, lines 41-52; column 5, lines 7-45).

13. Regarding claims 8 and 9, Gitlin further discloses that the calculations involve subtracting the estimated interference symbols from the received signal (see generally column 3, lines 41-52).

14. Regarding claim 20, Gitlin further discloses using at least two symbols when canceling the interference (see generally column 5, lines 14-45).

15. Claim 21 is rejected under 35 U.S.C. 102(e) as being anticipated by Shimizu et al ("Shimizu"). Shimizu discloses an interference removal method comprising receiving a data signal having superimposed interference, estimating the input signals, and subtracting the estimates from the received signal (see generally column 5, lines 39-67). Shimizu further explains the computation of probable values for the estimates and performing a weighting operation to improve the accuracy of the estimated values (see generally column 5, lines 39-67; column 6 line 58 - column 7, line 24).

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2631

17. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

18. Claims 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gitlin in view of Anderson et al ("Anderson").

19. Regarding claims 11 and 12, Gitlin discloses all of the elements as described above in reference to claim 8. Gitlin further discloses that the estimations of the symbols are possible because of the relationship between the interference power and the signal power (see generally column 3, lines 44-47), but does not specifically recite calculating the interference power. Anderson discloses a system for interference reduction wherein an interference estimate is determined by including in part a calculation of the interference power (see generally column 3, lines 11-17). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Gitlin to include calculating the interference power, if not already calculated, in order to ensure that this power is less than the signal power which is necessary for an accurate estimate (see Gitlin, column 3, lines 44-47).

20. Regarding claim 13, Gitlin further discloses obtaining two estimated values before determining the received value (see generally column 5, lines 14-45).

Art Unit: 2631

21. Regarding claim 14, Gitlin further discloses that the inclusion of both data and crosstalk symbols (see generally column 3, lines 35-52).

22. Claims 15, 16, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gitlin and Anderson as applied above, and further in view of US patent 5,995,567 to Cioffi et al ("Cioffi_567").

23. Regarding claims 15 and 18, Gitlin and Anderson disclose all of the elements as described above in reference to claim 14, but neither specify a specific type of data signal. However, this type of interference cancellation is well known in the communications art for DMT applications. Cioffi_567 discloses such an interference cancellation system wherein the data signal is a VDSL or ADSL signal, which uses DMT encoding (see generally column 3, lines 34-36). It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the method described by Gitlin for use with DMT applications, as described by Cioffi_567.

24. Regarding claim 16, Cioffi_567 further discloses that the most accurate estimate of the noise signals is obtained when one of the signals is zero (see generally column 7, lines 4-9). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Gitlin to include zeroing selected signals in order to achieve a more accurate estimate when canceling the interference.

Claim Objections

25. Claims 5, 10, 17, and 19 are objected to as being dependent upon a rejected base claim.

Art Unit: 2631

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Demetria A. Williams whose telephone number is (703) 305-4078. The examiner can normally be reached on Monday - Friday, 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on (703) 305-4378. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3800.

daw
May 15, 2003



CHI PHAM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600 5/16/03